

## 2.5 FEDERAL REGULATORY STATUS

This section describes the federal environmental regulations that may affect the use of blanket wash chemicals. Information on the OSHA PELs is provided for informational purposes only. Discharges of blanket wash chemicals may be restricted by air, water and solid waste regulations; in addition, facilities may be required to report releases of some blanket wash products subject to the federal Toxic Release Inventory (TRI) program. Table 2-7 identifies federal regulations that govern releases of specific blanket wash chemicals; in addition, emissions or disposal of some chemicals may be regulated under general provisions. **This discussion of environmental statutes potentially affecting blanket wash chemicals is intended for information purposes only. Therefore, it should not be relied on by companies in the printing industry to determine applicable regulatory requirements.**

Table 2-7. Blanket Wash Use Cluster Chemicals Which Trigger Federal Environmental Regulations<sup>a</sup>

Chemical	CAS#	CWA 311 RQ (lbs)	CAA 112B Hazardous Air Pollutant	CERCLA RQ (lbs)	SARA 313 (TRI)	OSHA PEL (ppm) <sup>b</sup>	RCRA
Benzene, 1,2,4-trimethyl	95-63-6				X		
Cumene	98-82-8		X	5,000	X	50	U055
Diethanolamine	111-42-2		X		X		
Ethylene glycol ethers <sup>c</sup>	see below		X		X	100 <sup>d</sup>	
Dodecylbenzene sulfonic acid	27176-87-0	1,000		1,000			
N-Methylpyrrolidone	872-50-4				X		
Sodium bis(ethylhexyl) sulfosuccinate	577-11-7					2 <sup>e</sup>	
Sodium hydroxide	1310-73-2	1,000		1,000		2 <sup>e</sup>	
Stoddard solvent	8052-41-3					100	
Xylene	1330-20-7	1,000	X	1,000	X	100	U239

<sup>a</sup> See following pages for a description of each acronym and regulation.

<sup>b</sup> Permissible Exposure Limit (PEL) as an eight-hour Time Weighted Average concentration (ppm).

<sup>c</sup> The generic chemical category Glycol ethers is listed as a CAA 112B Hazardous Air Pollutant (HAP) and on SARA 313 TRI. The only glycol ether found in these blanket washes that is considered a HAP is diethylene glycol monobutyl ether (CAS No. 112-34-5). The propylene glycol ethers are not included in the glycol ether category under this law and are not considered HAPs.

<sup>d</sup> Dipropylene glycol methyl ether has a PEL of 100 ppm.

<sup>e</sup> OSHA ceiling value.

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The applicability of many federal regulations is determined in part by the chemicals being used at a facility. This section covers chemicals that the printing industry has identified as being used in the lithographic blanket wash process. However, individual facilities have their own chemical use patterns, which means that a particular facility may use chemicals that are not listed on Table 2-7, or may use some but not all of them. As a result, each facility must identify the universe of rules that apply to it by examining the regulations themselves.

This section only discusses federal environmental statutes. However, implementation of many federal programs is delegated to states that have programs at least as stringent as the applicable federal program. Thus, even where federal regulations apply, state laws may impose additional requirements that are not addressed here. There may also be state or local requirements where no federal regulations exist. This section provides an overview of federal regulations affecting the lithography sector of the commercial printing industry and of the specific chemicals used in the blanket wash use cluster that may trigger particular regulatory requirements.

### Clean Water Act

The Clean Water Act (CWA) is the basic Federal law governing water pollution control in the United States today.

Part 116 of the Federal Water Pollution Control Act (FWPCA) designates hazardous substances under Section 311(b)(2)(a) of the Clean Water Act, and Part 117 of the FWPCA establishes the *Reportable Quantity* (RQ) for each substance listed in Part 116. When an amount equal to or in excess of the RQ is discharged, the facility must provide notice to the Federal government of the discharge, following Department of Transportation requirements set forth in 33 Code of Federal Regulations (CFR) 153.203. This requirement does not apply to facilities that discharge the substance under a National Pollution Discharge Elimination System (NPDES) permit or a Part 404 Wetlands (dredge and fill) permit, or to a Publicly Owned Treatment Works (POTW), as long as any applicable effluent limitations or pretreatment standards have been met.

The NPDES permit program contains regulations governing the discharge of pollutants to waters of the United States. The NPDES program requires permits for the discharge of "pollutants" from any "point source" into "navigable waters". The Clean Water Act defines all of these terms broadly, and a source will be required to obtain an NPDES permit if it discharges almost anything directly to surface waters. A source that sends its wastewater to a publicly owned treatment works (POTW) will not be required to obtain an NPDES permit, but may be required to obtain an industrial user permit from the POTW to cover its discharge.

In addition to other permit application requirements, facilities in the industrial category of Printing and Publishing, and/or in Photographic Equipment and Supplies, will need to test for all 126 *priority pollutants* listed in 40 CFR 122 Appendix D. Each applicant also must indicate whether it knows or has reason to believe it discharges any of the other hazardous substances, or non-conventional pollutants located at 40 CFR 122 Appendix D. Quantitative testing is not required for the other hazardous pollutants; however, the applicant must describe why it expects the pollutant to be discharged and provide the results of any quantitative data about its discharge for that pollutant. Quantitative testing is required for the non-conventional pollutants if the applicant expects them to be present in its discharge.

For the purpose of reporting on effluent characteristics in permit applications, there exists a small business exemption (40 CFR 122.21 (g)(8)) for all applicants for NPDES permits with gross total annual sales averaging less than \$100,000 per year (in second quarter 1980 dollars). This exempts the small business from submitting quantitative data on certain organic toxic pollutants (see 40 CFR 122.21 Table II, Appendix D). However, the small business must still provide

quantitative data for other toxic pollutants (metals and cyanides) and total phenols, as listed in 40 CFR 122.21 Table III, Appendix D. The same regulations apply to the small business concerning the other hazardous pollutants and non-conventional pollutants as for the larger facilities (see previous paragraph).

### Clean Air Act

The Clean Air Act (CAA), with its 1990 amendments, sets the framework for air pollution control. Part 112 of the Clean Air Act establishes requirements that directly restrict the emission of 189 hazardous air pollutants. The EPA is authorized to establish Maximum Achievable Control Technology (MACT) standards for source categories that emit at least one of the pollutants on the list.

### Comprehensive Environmental Response, Compensation and Liability Act

The Comprehensive Environmental Response, Compensation and Liability Act (also known as CERCLA, or more commonly as Superfund) is the Act that created the Superfund and set up a variety of mechanisms to address risks to public health, welfare, and the environment caused by hazardous substance releases.

Substances deemed hazardous by CERCLA are listed in 40 Code of Federal Regulations (CFR) 302.4. Based on criteria that relate to the possibility of harm associated with the release of each substance, CERCLA assigns a substance-specific reportable quantity (RQ); RQs are either 1, 10, 100, 1000, or 5000 pounds (except for radionuclides). Any person in charge of a facility (or a vessel) must immediately notify the National Response Center as soon as a person has knowledge of a release (within a 24-hour period) of an amount of a hazardous substance that is equal to or greater than its RQ.<sup>b</sup> There are some exceptions to this requirement, including exceptions for certain continuous releases and for Federally permitted releases.

### Superfund Amendments and Reauthorization Act, Section 313

CERCLA was enacted in 1980 and, among other amendments, was amended in 1986 by Title I of the Superfund Amendments and Reauthorization Act (SARA). Under SARA Section 313, a facility that has more than 10 employees and that manufactures, processes or otherwise uses more than 10,000 or 25,000 pounds per year of any toxic chemical listed in 40 Code of Federal Regulations (CFR) 372.65 must file a toxic chemical release inventory (TRI) reporting form (EPA Form R) covering releases of these toxic chemicals (including those releases specifically allowed by EPA or State permits) with the EPA and a State agency. The threshold for reporting releases is 10,000 or 25,000 pounds, depending on how the chemical is used (40 CFR 372.25). Form R is filed annually, covers all toxic releases for the calendar year, and must be filed on or before the first of July of the following year. Table 2-7 lists chemicals used by facilities in lithographic blanket washes that are listed in the Toxic Release Inventory (TRI). Individual facilities may use other chemicals which are listed in the TRI, but are not in Table 2-7.

### Superfund Amendments and Reauthorization Act, Section 110

SARA Section 110 addresses Superfund site priority contaminants. This list contains the 275 highest ranking substances of the approximately 700 prioritized substances. These chemical substances, found at Superfund sites, are prioritized based on their frequency of occurrence,

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<sup>b</sup> The national toll-free number for the National Response Center is (800)-424-8802; in Washington, D.C., call (202)-426-2675.

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toxicity rating, and potential human exposure. Once a substance has been listed, the Agency for Toxic Substances and Disease Registry is mandated to develop a toxicological profile that contains general health/hazard assessments with effect levels, potential exposures, uses, regulatory actions, and further research needs.

### Occupational Safety and Health Act

The Occupational Safety and Health Administration (OSHA) was established in 1970 under the Occupational Safety and Health (OSH) Act to reduce the occurrence of occupational health hazards, and to develop health and safety standards and training programs.

As authorized by Sections 6(a) of the OSH Act, which enables OSHA to promulgate existing Federal standards and national consensus standards as OSHA standards, the Health Standards program of OSHA established permissible exposure limits (PELs) for general industry Air Contaminants (29 CFR 1910.1000). A PEL is a total weighted average (TWA) concentration that is not to be exceeded in an 8 hour workday of a 40 hour work week, assuming a 50 week work year and 40 years of work. The majority of PELs were adopted from the Walsh-Healey Public Contracts Act which adopted standards from the 1968 Threshold Limit Values (TLV) of the American Conference of Governmental Industrial Hygienists (ACGIH).

On June 7, 1988, in an effort to increase the protection of the American workers, OSHA proposed to revise the PELs by adding 164 substances to the list and lowering the PEL for 212 of the 600 substances currently listed. OSHA also wanted to establish skin designations, short term exposure limits (STELs) and ceiling limits for these substances. Before the proposed changes went into effect, the ruling in the case of AFL-CIO v. OSHA in the 11th Circuit Court of Appeals rendered the revised PELs, STELs and ceiling limits invalid, reasoning that the PELs were generic health standards, not individual standards. Therefore, the 212 currently listed substances are enforced at the 1971 PELs and the 164 newly proposed PELs are not enforceable by OSHA. However, the "general duty clause" in Section 5(a)(1) of the OSH Act may be considered when the "unofficial" PELs of the 164 added substances are exceeded. The ruling prompted OSHA to begin developing individual PELs, STELs and ceiling limits for the substances included in the Health Standards program.

### Resource Conservation and Recovery Act

One purpose of the Resource Conservation and Recovery Act (RCRA) of 1976 (as amended in 1984) is to set up a cradle-to-grave system for tracking and regulating hazardous waste. The EPA has issued regulations, found in 40 CFR Parts 260-299, which implement the Federal statute. These regulations are Federal requirements. As of March 1994, 46 states have been authorized to implement the RCRA program and may include more stringent requirements in their authorized RCRA programs. In addition, non-RCRA-authorized states (Alaska, Hawaii, Iowa and Wyoming) may have state laws that set out hazardous waste management requirements. A facility should always check with the state when analyzing which requirements apply to their activities.

Assuming the material is a solid waste, the first evaluation to be made is whether it is also considered a hazardous waste. Part 261 of 40 Code of Federal Regulations (CFR) addresses the identification and listing of hazardous waste. The waste generator has the responsibility for determining whether a waste is hazardous, and what classification, if any, may apply to the waste. The generator must examine the regulations and undertake any tests necessary to determine if the wastes generated are hazardous. Waste generators may also use their own knowledge and familiarity with the waste to determine whether it is hazardous. Generators may be subject to enforcement penalties for improperly determining that a waste is not hazardous.

Wastes can be classified as hazardous either because they are listed by EPA through regulation and appear in the 40 CFR Part 261 or because they exhibit certain characteristics. Listed wastes are specifically named, e.g., discarded commercial toluene, spent non-halogenated solvents. Characteristic wastes are defined as hazardous if they "fail" a characteristic test, such as the RCRA test for ignitability.

There are four separate lists of hazardous wastes in 40 CFR 261. If any of the wastes from a printing facility is on any of these lists, the facility is subject to regulation under RCRA. The listing is often defined by industrial processes, but all wastes are listed because they contain particular chemical constituents (these constituents are listed in Appendix VII to Part 261). Section 261.31 lists wastes from non-specific sources and includes wastes generated by industrial processes that may occur in several different industries; the codes for such wastes always begin with the letter "F." The second category of listed wastes (40 CFR 261.32) includes hazardous wastes from specific sources; these wastes have codes that begin with the letter "K." The remaining lists (40 CFR 261.33) cover commercial chemical products that have been or are intended to be discarded; these have two letter designations, "P" and "U." Waste codes beginning with "P" are considered acutely hazardous, while those beginning with "U" are simply considered hazardous. Listed wastes from chemicals that are commonly used in the lithographic blanket washes are shown in Table 2-7. While these exhibits are intended to be as comprehensive as possible, individual facilities may use other chemicals and generate other listed hazardous wastes that are not included in Table 2-7. Facilities may wish to consult the lists at 40 CFR 261.31-261.33.<sup>c</sup>

Generator status defines how to dispose of a listed or characteristic waste. The hazardous waste generator is defined as any person, by site, who creates a hazardous waste or makes a waste subject to RCRA Subtitle C. Generators are divided into three categories:

- Large Quantity Generators - These facilities generate at least 1000 kg (approximately 2200 lbs.) of hazardous waste per month, or greater than 1 kg (2.2 lbs) of acutely hazardous waste<sup>d</sup> per month.
- Small Quantity Generators (SQG) — These facilities generate greater than 100 kg (approx. 220 lbs.) but less than 1000 kg of hazardous waste per month, and up to 1 kg (2.2 lbs) per month of acutely hazardous waste.
- Conditionally exempt small quantity generators (CESQG) — These facilities generate no more than 100 kg (approx. 220 lbs) per month of hazardous waste and up to 1 kg (2.2 lbs) per month of acutely hazardous waste.

Large and small quantity generators must meet many similar requirements. 40 CFR 262 provides that SQGs may accumulate up to 6000 kg of hazardous waste on-site at any one time for up to 180 days without being regulated as a treatment, storage, or disposal (TSD) facility and thereby having to apply for a TSD permit. The provisions of 40 CFR 262.34 (f) allow SQGs to store waste on-site for 270 days without having to apply for TSD status provided the waste must be transported over 200 miles. Large quantity generators have only a 90-day window to ship wastes off-site without needing a RCRA TSD permit. Keep in mind that most provisions of 40 CFR 264

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<sup>c</sup> Lists of the "F, P, K and U" hazardous wastes can also be obtained by calling the EPA RCRA/Superfund/EPCRA Hotline at (800) 424-9346.

<sup>d</sup> The provisions regarding acutely hazardous waste are not likely to affect printers. Acutely hazardous waste includes certain "F" listed wastes that do not apply to printers, and "P" listed wastes, none of which were identified as in use in the commercial lithographic industry. (See 40 CFR 261.31-33 for more information).

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and 265 (for hazardous waste treatment, storage and disposal facilities) do not apply to generators who send their wastes off-site within the 90- or 180-day window, whichever is applicable.

Hazardous waste generators that do not meet the conditions for conditionally exempt small quantity generators must (among other requirements such as record keeping and reporting):

- Obtain a generator identification number;
- Store and ship hazardous waste in suitable containers or tanks (for storage only);
- Manifest the waste properly;
- Maintain copies of the manifest, a shipment log covering all hazardous waste shipments, and test records;
- Comply with applicable land disposal restriction requirements; and
- Report releases or threats of releases of hazardous waste.

### 2.6 SAFETY HAZARD BY FORMULATION

Table 2-8 contains Safety Hazard Factors for the 36 blanket wash formulations and the baseline used in the lithography industry. There are four Safety Hazard Factors addressed in this table: reactivity, flammability, ignitability, and corrosivity. As was described in Section 2.2 Chemical Information for the individual chemicals used in the blanket wash formulations, they were derived as follows.

Where applicable, the reactivity and flammability values were extracted directly from section one of the blanket wash formulation's Material Safety Data Sheets (MSDSs). This section contains the National Fire Protection Association (NFPA) values on both reactivity and flammability. For reactivity, NFPA ranks materials on a scale of 0 through 4:

- 0 - materials that are normally stable, even under fire exposure conditions, and that do not react with water; normal fire fighting procedures may be used.
- 1 - materials that are normally stable, but may become unstable at elevated temperatures and pressures and materials that will react with water with some release of energy, but not violently; fires involving these materials should be approached with caution.
- 2 - materials that are normally unstable and readily undergo violent chemical change, but are not capable of detonation; this includes materials that can rapidly release energy, materials that can undergo violent chemical changes at high temperatures and pressures, and materials that react violently with water. In advanced or massive fires involving these materials, fire fighting should be done from a safe distance of from a protected location.
- 3 - materials that, in themselves, are capable of detonation, explosive decomposition, or explosive reaction, but require a strong initiating source or heating under confinement; fires involving these materials should be fought from a protected location.
- 4 - materials that, in themselves, are readily capable of detonation, explosive decomposition, or explosive reaction at normal temperatures and pressures. If a